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21 MAR 1963

MEMORANDUM FOR: Chief, Programs Staff, OSA

SUBJECT: Justification For Rental of IBM 7090 Computer

The following information is submitted as the Operations Division input for the consolidated memorandum to be forwarded to DD/R justifying the requirement for rental of an IBM 7090 Computer for computer programs supporting OSA projects.

1. Purpose:

To provide Project Operations, through Electronic Data Processing methods, those usable products which will appreciably decrease the time of the preparatory phases of operations, greatly increase the planning flexibility, and provide display data to be used by competent authority in the decision making process.

2. Concept of Operations:

The "usable products" will include but not be limited to:

a. A complete flight plan for OXCART. This flight plan will include all information required for the commander to plan and brief a directed mission. In the computer preparation of the flight plan the factors of vehicle performance, weather data, and intelligence data will be considered to provide optimum results for a mission. The combination of these items requires a computer with a very large memory core to simultaneously accept and rapidly process this voluminous data.

b. A complete flight plan for IDEALIST. Essentially the same type flight plan will be produced as for the OXCART program. The same general parameters of performance, weather and intelligence will be considered. The IDEALIST flight plan will be more simple in content with no requirement for INS.

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c. Ephemeris plotting for Satellite Projects. Computer programs will be developed to accept the basic orbital elements and produce actual orbital track information to include "look-see" areas for CORONA, LANYARD, and other follow-on programs. Combining weather data and target information with the orbital track computations will require a memory core capacity well in excess of that in the presently installed IBM 1410 computer. Although recent programming efforts have proven the IBM 1410 is capable of computations for any one of the individual problems, i.e., track computation, "look-see" areas, or target data, it is not capable of performing computations of all these parameters at one time. A basic ephemeris program, utilizing the IBM 1410 is nearing completion, but sophistication of this program will be difficult, if not impossible, until adequate computer memory core becomes available.

3. Machine Utilization:

Considering the diversification and magnitude of the programs outlined above an estimate of machine utilization of less than an average of fifteen hours per week would be impractical. Although the actual running time for any one program may not exceed an hour, the program "debugging" time to achieve perfection in a machine program could easily amount to ten or twenty hours. Pursuing the concept of continuous sophistication of all machine programs will require many hours of "debugging" each week. The fifteen hour estimate is predicated on support of known operational requirements.

4. Funding:

From discussions with ADPS personnel it appears funding for the rental of the IBM 7090 will be made through the DD/S. This will obviate any requirement for direct funding from DD/R except for overhead funds for personnel and ancillary EDP equipment for the Automation Branch, OSA/OD. These funds should not appreciably increase with the installation of an IBM 7090. The obligation will remain approximately the same as if current computer resources were utilized.


Chief, Operations Division, OSA

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